

AMENDMENTS TO THE DRAWINGS

Please amend Figure 1 as shown in the enclosed replacement sheet. The attached sheet includes an amendment to the drawing as requested by the Examiner. Applicant respectfully submits that the enclosed replacement sheet is formal.

REMARKS

Please reconsider the application in view of the above amendments and the following remarks. Applicant thanks the Examiner for carefully considering this application.

Disposition of Claims

Claims 1-16 are currently pending in this application. Claim 16 was withdrawn by the Examiner as being directed to a non-elected invention. Claims 1, 4, 6, 9, and 16 are independent. The remaining claims depend, directly or indirectly, from claims 1, 4, 6, and 9.

Drawing Objection

Figure 1 was objected to because the word “electrode” was misspelled as “ellectrode.” As discussed previously, the Applicant has amended Figure 1 to address this issue. Accordingly, withdrawal of the objection is respectfully requested.

Rejection(s) under 35 U.S.C. § 102(b)

Claims 1, 8, 11-13, and 15 stand rejected under 35 U.S.C. § 102(b) as being anticipated by U.S. Patent No. 5,851,905 (“McIntosh”). For the reasons set forth below, this rejection is respectfully traversed.

The present invention is directed to a GaN-based device. Referring to, *e.g.*, Fig. 1 and the associated text of the present application, an AlInGaN buffer layer (22) is adjacent to the light emitting member (24). In this embodiment, the light emitting member (24) includes a multilayer quantum well structure having a barrier layer and a well layer. To emit light, electrons and holes combine in the well layer. As described in, for example, paragraph [0023] of the Publication of the present application, the inventive feature of having the buffer layer

adjacent to the light emitting member is advantageous at least in that the efficiency for supplying electrons to the well layer is improved and the number of holes moving away from the multilayer quantum well is reduced, and subsequently the light emission efficiency may be improved. Accordingly, independent claim 1 recites, *inter alia*, “a buffer layer adjacent to the light emitting member.” McIntosh is completely silent with respect to at least the aforementioned limitation as required by independent claim 1.

In contrast to the present invention, McIntosh discloses a buffer layer (14) that is adjacent to a substrate (15) and to a cladding layer (13a) (*see, e.g.*, McIntosh, Figs. 1-4), but *not* to a quantum well structure (barrier layers and active layers). In the Office Action mailed on December 29, 2006 (page 4), the Examiner cites Figures 3, 4, 8, and 9 of McIntosh and asserts that McIntosh discloses “...a buffer layer (11a) adjacent to the light emitting member (11d, 12c, 11e, 13c, 11f, 12b, 11b, 12a). However, the layer (11a) cited by the Examiner is actually described by McIntosh as a barrier layer (11a) (*see*, McIntosh, col. 5, line 46). Thus, it appears that the Examiner has incorrectly equated the buffer layer of the present invention to a barrier layer (11a) of McIntosh, the latter being adjacent to a cladding layer and, as a matter of fact, a part of the multilayer quantum well structure. Said another way, the barrier layer (11a) cited by the Examiner is a part of the multilayer quantum well structure (*i.e., part of and not adjacent to the multilayer quantum well structure*).

Further, assuming even *arguendo* that the Examiner intended to refer to buffer layer (14), as discussed previously, instead of barrier layer (11a), the *buffer layer (14) is not adjacent to a light emitting member* as required by independent claim 1. Specifically, McIntosh, in contrast to the present invention, discloses that the buffer layer (14) is adjacent to a substrate (15) and to a cladding layer (13a) (*see, e.g.*, McIntosh, Figs. 1-4), but *not* to a multilayer quantum well structure (barrier layers and active layers). Moreover, as described in, for

example, paragraph [0023] of the Publication of the present application, having the buffer layer adjacent to the light emitting member advantageously improves the efficiency for supplying electrons to the well layer and also, reduces the number of holes moving away from the quantum well layer (*i.e.*, the light emission efficiency is improved). In contrast, as disclosed in col. 5, lines 19—22 of McIntosh, the buffer layer (14) of McIntosh is adjacent to the substrate in order to absorb lattice and thermal mismatches between the substrate and the remainder of the device. Thus, the buffer layer (14) of McIntosh is *not* equivalent to and does not teach or suggest a buffer layer adjacent to the light emitting member as recited in independent claim 1 of the present application.

In view of the above, McIntosh fails to show or suggest the present invention as recited in claim 1. Thus, claim 1 is patentable over McIntosh. Dependent claims 8 and 11-13 are patentable for at least the same reasons. Accordingly, withdrawal of this rejection is respectfully requested.

Rejection(s) under 35 U.S.C. § 102(e)

Claims 1, 4, and 11-15 stand rejected under 35 U.S.C. § 102(e) as being anticipated by U.S. Patent Application Publication No. 2006/0175600 (“Sato”). For the reasons set forth below, this rejection is respectfully traversed.

Applicant respectfully submits that Sato does not constitute prior art under § 102(e), and thus cannot be used in a prior art rejection. Under § 102(e), a publication of a § 371 application based on an international application may constitute prior art under § 102(e) only if the international application (1) has an international filing date on or after November 29, 2000; (2) designated the United States; and (3) published in English. In the present case, Sato is a §

371 of international application PCT/JP03/07061, which did not publish in English. Thus, Sato does not qualify as prior art under § 102(e).

Moreover, Sato also does not qualify as prior art under § 102(a) or (b). Under § 102(a), a reference must have a publication date earlier in time than the effective filing date of the application to constitute prior art. However, an application's claim for priority under § 119(a)-(e) may be used to antedate the reference's publication date. Sato is not prior art under § 102(a) because its publication date, December 11, 2003, is after both the present application's PCT priority date, July 1, 2003, and its priority date under § 119, July 16, 2002. Under § 102(b), a reference must publish more than one year prior to the U.S. filing of the application to constitute prior art. Because the publication date of Sato, August 10, 2006, is after July 1, 2003, the PCT filing date, Sato is also not prior art to the present application under 35 U.S.C. § 102(b). Accordingly, withdrawal of this rejection is respectfully requested.

Furthermore, Applicant additionally notes that while not presently cited by the Examiner, WO 03/103062 ("WO '062"), the PCT publication corresponding to Sato, is also not prior art to the present application. First, WO '062 published in Japanese, and thus cannot be used as prior art under § 102(e). Second, because the publication date of WO '062, December 11, 2003, is after both the international filing date and the priority date of the present application, WO '062 does not qualify as prior art under § 102(b). Third, because the publication of WO '062, December 11, 2003, is after both the filing date and the priority date, WO '062 also does not qualify as prior art under § 102(a). Accordingly, WO '062 does not constitute prior art under § 102(a), (b), or (e), and thus may not be used against the present application.

Conclusion

Applicant believes this reply is fully responsive to all outstanding issues and places this application in condition for allowance. If this belief is incorrect, or other issues arise, the Examiner is encouraged to contact the undersigned or his associates at the telephone number listed below. Please apply any charges not covered, or any credits, to Deposit Account 50-0591 (Reference Number 08228/071001).

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Respectfully submitted,

By 

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Attachment: (Replacement Sheet)